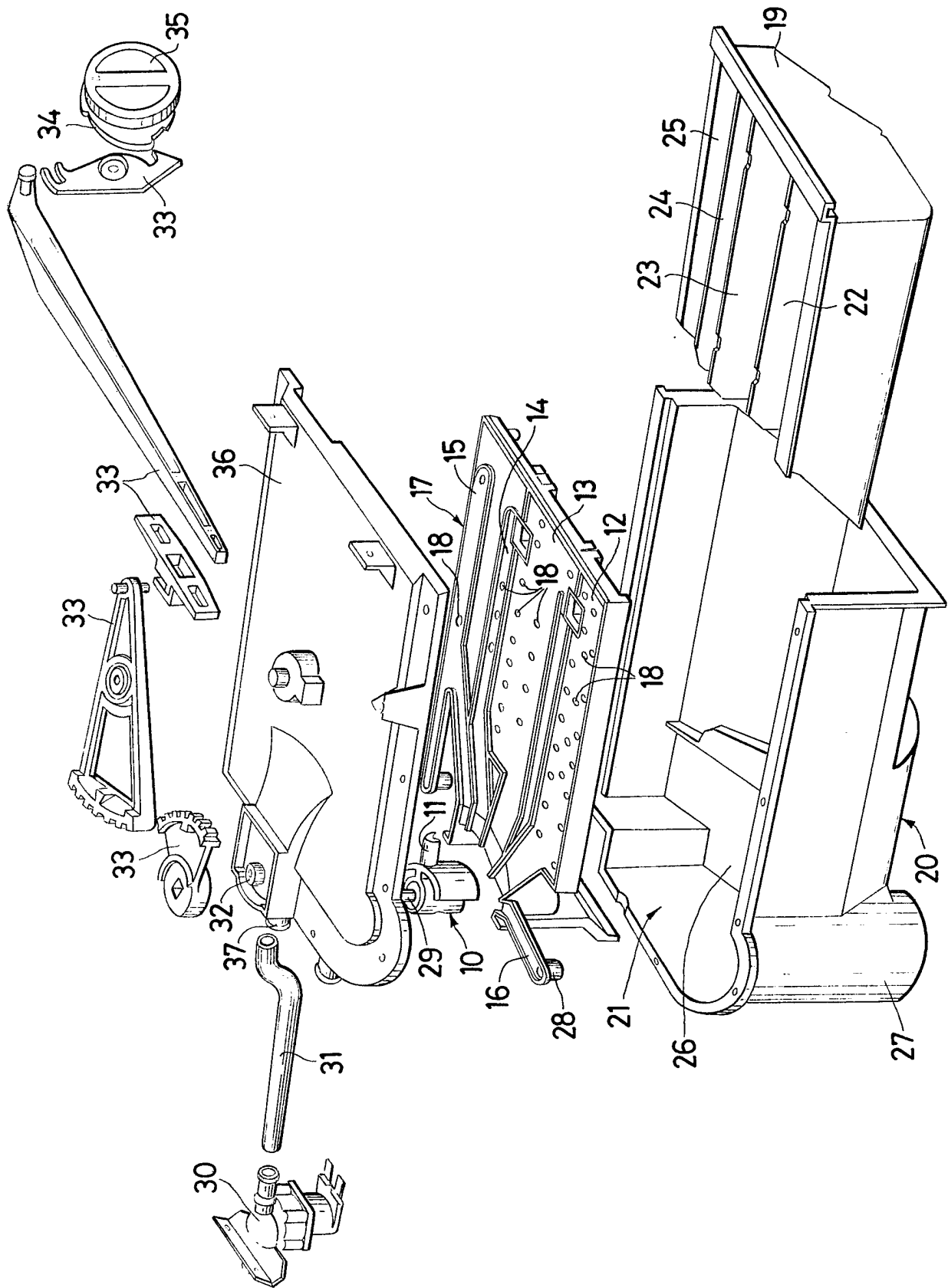


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## SPECIFICATION

**Unit for feeding selected wash liquid into a washing machine tub**

5 This invention relates to an advantageous unit  
for feeding selected wash liquid into a washing  
machine tub.

Known units used up to the present time for  
feeding selected wash liquid into a washing  
machine tub present drawbacks. In this respect,  
10 when the detergent powder present in the  
detergent drawer of the unit is removed by the  
water and fed into the tub, it deposits on the tub  
base. In this manner, part of the detergent is lost  
at the mouth of the liquid intake pipe, with the  
15 risk of blocking this latter. The rest of the  
detergent dissolves normally in the water to form  
a wash liquid, which however obviously has low  
cleaning capacity. A similar argument can be  
applied to the other powder substances (softener,  
20 bleach etc.) used in the washing of laundry by  
means of a washing machine.

The object of the present invention is to  
obviate the aforesaid drawbacks of the known art  
by providing a unit for feeding a washing machine  
tub with selected wash liquid, which allows the  
25 utilisation of the powder or liquid substances used  
in the wash process to be optimised.

This object is attained by a unit for feeding  
selected wash liquid into a washing machine tub,  
30 characterised by comprising a distributor for  
selectively distributing water either to a direct  
inlet to the tub or to one of several compartments  
of a drawer which lead into a header  
communicating with said tub, each of said  
35 compartments being arranged to contain one  
wash substance.

The characteristics and advantages of the  
present invention will be apparent from the  
description of an embodiment thereof given  
40 hereinafter with reference to the accompanying  
drawing, of which the single figure represents an  
exploded perspective view of the unit according  
to the invention.

By way of non-limiting example, a unit  
45 according to the invention comprises essentially a  
rotating element 10 carrying a nozzle 11 which,  
depending on its angular position, selectively  
feeds water either to one of four channels 12, 13,  
14, 15 of a plate 17 which is perforated in its  
50 base with holes 18, or to a lateral channel 16  
which comprises a water outlet port 28 and is  
formed in a single piece with the plate 17.

The plate 17 lies above a drawer 19  
comprising compartments 22, 23, 24 and 25 in  
55 positions corresponding with the channels 12, 13,  
14 and 15 respectively.

The drawer 19 is housed in a tray 20 which  
comprises a collection portion or header 21 into  
which the compartments 22, 23, 24 and 25 lead,  
60 and which has its base 26 inclined towards a  
discharge portion 27 communicating with a  
washing machine tub, not shown.

The outlet port 28 opens directly into the  
discharge portion 27.

65 The nozzle 11 receives water through a tube  
29 fixed to the element 10 and connected to a  
tube 31 which itself is connected to the mains  
water supply by way of a solenoid water shut-off  
valve 30. The connection between the tube 31  
70 and tube 29 is made by a rotary joint, which is not  
shown because of known type.

At this connection, the head 32 of the rotating  
shaft, which is rigidly connected to the element  
10, is operated by way of a series of linkages 33  
75 from a cam 34 rotating with the knob 35 of the  
washing machine programmer.

The tray 20, together with the drawer 19 and  
its overlying plate 17, is closed upperly by a  
backing plate 36.

80 The head 32 and a connector 37 for  
connecting the tube 31 are disposed above said  
backing plate 36.

By suitably shaping the profile of the cam 34,  
the nozzle 11 can be made to rotate into a  
85 position corresponding with the channel 16  
before it moves into positions corresponding with  
one of the channels 12, 13, 14, 15.

During operation, the compartments of the  
drawer 19 are filled with suitable powder  
substances, such as a prewash detergent in the  
90 compartment 22, a wash detergent in the  
compartment 23, and softeners and bleaches in  
the compartments 24 and 25.

If for example the prewash detergent is to be  
95 fed into the tub, the nozzle 11 is firstly moved into  
a position corresponding with the channel 16  
under the control of the knob 35, as stated. The  
valve 30 is then opened and the water flows from  
the nozzle 11 along the channel 16 and through  
100 the port 28 and portion 27 to directly reach the  
tub. When the water has partly filled the tub, the  
solenoid valve 30 closes. At this point, the nozzle  
11 rotates, again under the control of the knob  
35, into a position corresponding with the channel  
105 12. The solenoid valve 30 reopens and the water  
flows from the nozzle 11 along the channel 12  
from which it flows through the holes 18 of this  
latter and into the compartment 22. The prewash  
detergent contained therein is removed by the  
110 water and entrained into the tub by way of the  
portion 27. The mixture comprising the water and  
prewash detergent thus falls into the initially fed  
water and fills the tub.

The aforesaid initial water feed prevents  
115 prewash detergent depositing on the base of the  
tub at the mouth of the liquid intake pipe, which  
could lead to the consequences already stated in  
the introduction.

An initial water feed is made into the tub in a  
120 similar manner before removing the powder  
substances contained in the other compartments  
23, 24 and 25.

A unit which is constructed and operating as  
heretofore described therefore enables the wash  
125 powders to be completely utilised.

The programmer is not described in detail  
herein as it is well known to the expert of the art.  
It is apparent that modifications and/or

additions can be made to the present embodiment.

In particular, the shape and number of components of the unit can be suitably varied according to the various requirements. In addition, the elements 33 can be replaced by kinematically equivalent elements.

Finally, the direct water inlet can be attained by directly connecting the discharge portion 27 to the mains water supply by a tube containing a second solenoid valve. In this case, the lateral channel 16 is dispensed with and the rotary element 10 feeds water only to the four channels 12, 13, 14 and 15. Modifications would then be necessary to the programming device both in order to limit the angular excursion of the element 10 and in order to cause the two solenoid valves to operate in a suitable sequence. These modifications are not described herein as they are also within the scope of an expert of the art.

### Claims

1. A unit for feeding selected wash liquid into a washing machine tub, characterized by comprising a distributor for selectively distributing

25 water either to a direct inlet to the tub or to one of a plurality of compartments of a drawer which lead into a header communicating with said tub, each of said compartments being adapted to contain a wash substance.

30 2. A unit as claimed in Claim 1, characterized in that said selective water distributor comprises a rotary element linked to programmer means and carrying a nozzle for selectively feeding water to said direct inlet to the tub or to one of said compartments of said drawer.

35 3. A unit as claimed in Claim 2, characterized in that said drawer is surmounted by a plate comprising channels with a perforated base in positions corresponding to said compartments, and further comprising a channel which opens directly into an outlet portion of said header, all said channels being selectively fed by said nozzle.

40 4. A unit as claimed in Claim 2, characterized in that said rotary element is linked to a cam of the washing machine programmer knob.

45 5. A wash liquid feeding unit for a washing machine tub, substantially as hereinbefore described with reference to the accompanying drawing.